

**Summary Minutes of the
U.S. Environmental Protection Agency (EPA)
Science Advisory Board (SAB)
Committee on Valuing the Protection of Ecological Systems and Services
Advisory Meeting
October 28, 2003, J. W. Marriott Hotel, Washington, DC**

Committee Members: (See Roster – Attachment A)

Date and Time: 9:00 a.m. – 5:45 p.m., October 27, 2003 (See *Federal Register* Notice - Attachment B)

Location: J. W. Marriott Hotel
1331 Pennsylvania Avenue, NW
Washington, DC 20004

Purpose: The purpose of this meeting was to provide initial consultative advice on the development of EPA's Strategic Plan for Ecological Benefits and to plan the Committee's work.

Attendees:

Chair:	Dr. Domenico Grasso
SAB Members:	Dr. William Ascher Dr. Gregory Biddinger Dr. Ann Bostrom Dr. James Boyd Dr. Terry Daniel Dr. A. Myrick Freeman Dr. Dennis Grossman Dr. Robert Huggett Dr. Klaus Lackner Dr. Douglas MacLean Dr. Harold Mooney Dr. Richard Norgaard Dr. Louis Pitelka Dr. Holmes Rolston Dr. Joan Roughgarden Dr. Mark Sagoff Dr. Kathleen Segerson Dr. Paul Slovic Dr. V. Kerry Smith Dr. Valerie Thomas Dr. Barton Thompson, Jr.

SAB Staff:	Dr. Angela Nugent, Designated Federal Officer Dr. Vanessa Vu, Director, SAB Staff Office
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Other Participants (In Order of Appearance on Agenda):

Dr. Nicole Owens, National Center for Environmental Economics
Dr. T. J. Wyatt, Office of Pesticide Programs

Other Attendees:

Dr. Sharon Hayes, Office of Water

Meeting Summary

The discussion generally followed the issues and as presented in the Meeting Agenda (See Meeting Agenda - Attachment C). The workshop lasted until 3:05 p.m. on October 28, 2003.

Opening of Public Meeting

Dr. Angela Nugent, Designated Federal Officer (DFO) for the SAB Committee on Valuing the Protection of Ecological Systems and Services, opened the meeting at 8:30 a.m. and she welcomed meeting attendees. She opened with a statement that the SAB is a chartered federal advisory committee whose meetings are public by law. She reviewed FACA requirements, the Committee's compliance with Federal ethics and conflict-of-interest laws, and the Committee formation process. Dr. Nugent said that her role as DFO was to be present during Committee business and deliberations. Records of Committee discussions are maintained and summary minutes of the meeting will be prepared and certified by the Committee chair, and will be available to the public in approximately one month, she said. Dr. Nugent also asked Committee members to comment for the public record if their work was being discussed at any time during the meeting. She noted that if any member of the Committee discovers in the future that a conflict of interest possibly exists, they must communicate with appropriate SAB staff.

Dr. Nugent stated that the meeting is a consultation for the Agency in which the staff is seeking advice early in the process of drafting a report. Charge questions and a draft document have been submitted for consideration. No written report of deliberations will be submitted, so the effort will not be an attempt to reach consensus. The advantage of this approach is that the Agency receives the Committee's advice right away without waiting for a report.

Welcome and Remarks

Dr. Domenico Grasso, Committee Chair, welcomed members and thanked them for their participation. He reviewed the agenda, noting that the consultation on the draft "Ecological Benefits Assessment Strategic Plan" (See Attachment D) and the accompanying "Appendix B Literature and Information Resources for Ecological Benefits Assessment" (See Attachment E) will be followed by consideration of the Committee's future activities. He said that Dr. Nugent will be posting summary minutes from the Committee's deliberations but no written report from the Committee will be forwarded to the Agency. He asked Committee members, Agency staff, and members of the public to introduce themselves.

Presentation on Agency's Efforts to Develop an "Ecological Benefits Assessment Strategic Plan" and Summary of Charge Questions for Consultation

Dr. T. J. Wyatt, Office of Pesticide Programs (OPP), described the "Ecological Benefits Assessment Strategic Plan" as an internal and deliberative document. It started as a project by the Office of Water (OW), but many cross cutting issues were discovered. A working group was assembled to provide a means for the Agency to coordinate its work on benefits assessment and to guide strategic investments in strengthening those assessments. Dr. Wyatt provided a slide presentation (See Attachment F) to explain the process of developing the strategic plan.

The working group consists of both economists and ecologists. There is a steering committee as well, with partially overlapping membership from management.

Dr. Wyatt said that motivation for the initiative came in part from the increasing demand for benefit cost analysis, noting that the Agency is required to conduct analyses for major rulemakings and to justify its decisions generally under the Government Performance and Results Act. Congress wants to know that money is being spent wisely and that constituents are not overly burdened but rather benefited by regulation. Even if one disagrees with aspects of benefit-cost analysis, it is a reality, he said.

Dr. Wyatt noted that historically, environmental costs were fairly modest in the past and many of the problems environmental programs addressed were "common sense" issues. At the current time, many regulatory questions concern not merely whether, but how and how much regulation should be undertaken by the Agency. He noted that the Agency previously focused on human health, where there is more consensus on value than for ecological protection. In the past, many benefits were unquantified in the past and values were inferred. He also observed that ecological impacts are inherently more difficult to quantify. Primary constraints include scarce resources and the commitment of time required to do complete assessments.

Dr. Wyatt listed four objectives for EPA's strategic plan: 1) identify technical and scientific gaps; 2) suggest areas of research focus given that data or models for assessments are not always available; 3) increase collaboration; and 4) propose mechanisms to implement the plan so assessments had limited success for various reasons, including a lack of data, little integration of ecological and economic analyses, and little collaboration between ecologists and economists. Past efforts were often isolated within individual programs. He described the prospects for success as promising in part because the sciences of ecology and economics are making advances and because institutional interest is increasing.

Dr. Wyatt introduced Dr. Nicole Owens, National Center for Environmental Economics (NCEE), to provide a description of the problems to be addressed and the direction being taken by the Agency. Dr. Owens stated that in the Agency's past assessments, most of EPA's efforts to monetize benefits were related to recreational benefits such as fishing, swimming, remediated acres, and clean-up of wetlands. The Agency found most nonmarket benefits difficult to measure. Dr. Owens said that this is problematic because non-monetized benefits tend to be overlooked in the policy process. Dr. Owens described the four basic methods used to determine economic benefits: benefit transfer (most often used by EPA), market method, revealed

preference, and stated preference. The latter method is used by OW, and relies on a 20-year old study by Mitchell and Carson, she said.

Dr. Owens described the process for developing the strategic plan. Twelve meetings of the editor's group have been held so far and a staff survey has been conducted. She then described the draft strategic plan's support for an "integrated benefits assessment process" that would coordinate the work of ecologists and economists to provide a whole suite of information to decision makers on benefits assessment.

Dr. Owens concluded by commenting that the issue is difficult because of the differing statutes and program needs of the various offices. She asked for the Committee's feedback on major data gaps, institutional barriers, and whether the plan could be done on an Agency-wide basis as opposed to office-specific.

Dr. Owens and Dr. Wyatt responded to questions from Committee members concerning the draft strategic plan.

A Committee member commented that the plan needs to recognize the transition period required for an ecological system to reach equilibrium. The member also noted that economics are only brought in as valuation tools with no feedback mechanisms accounting for economic changes as a result of ecosystem changes. More dynamic analyses reflecting an understanding of ecological systems and their impact on economic systems needs to be included. The need for analytical support capturing these effects for decision makers by the Agency was emphasized by several Committee members. Continual adjustments are necessary in part because of ecosystem dynamics.

In response to these comments, Dr. Wyatt stated that the Agency lacked key economic and ecological models and data. The Agency especially lacks data and models to bridge the gaps between existing models and tools. There are specific examples where minimal work would bridge data/modeling gaps and address the "low hanging fruit."

A Committee member asked whether the strategic plan is designed to justify EPA's actions to Congress and OMB or for other uses. Dr. Owens replied that the goal is to help EPA make better decisions, not primarily to justify its decisions or to help outside organizations. Dr. Wyatt agreed, although he acknowledged that the Agency also recognizes that ecological valuation information would be helpful to others outside the Agency. Dr. Grasso commented that the charge to the Committee is broader than its advice to the Agency on the strategic plan and that the Committee can address the issue of broader uses of Agency data and information.

A member suggested that it would be meaningful to communicate ecological outcomes as well as benefits to the public by using outcome-based measures that focus on more "intermediate" steps than monetization. He also expressed skepticism that the Agency's proposed focus on national scale assessments and emphasis on benefits transfer will be effective. He noted that detaching the effects of stressors from the spatial dimensions relevant to them is a concept that may not be effectively transferred to ecological valuation on a national scale. Dr. Wyatt commented that

assessments have to be policy-specific, and he said that some policies may have national impact while others are regional. National-scale assessments are needed.

A Committee member commented that the lack of models and not data gaps, is the principal problem to be addressed and he said this should be clarified in the strategic plan. He also suggested that the issues in the plan be addressed “from the bottom up” through addressing specific questions arising from specific policy decisions, rather than starting with a theoretical background and plugging in information for specific programs. Dr. Sharon Hayes, OW, described a workshop that is planned to examine benefit assessments for several rulemakings in a specific program and then determine what is missing or could be improved in those assessments

A member took issue with the Agency’s view claim that there are disproportionately large ecological data gaps, suggesting that there is a great deal of policy-relevant ecological research that has been done on resource management that is not referenced in the strategic plan. She referred to her own research relating to ecology and economics, including defining efficient ecosystems and the economic implications of ecosystem stability and controllability.

There was a general discussion of the target audience for the strategic plan. It was noted that within the Agency, there seems to be differences of goals across the regions and policy offices. It was emphasized that the goals must be clearly identified for maximum effectiveness. A variety of target audiences were mentioned in the Agency briefings, including the executive, legislative, and judicial branches of the government as well as the general public.

A member urged caution in assigning public values to ecological protection and suggested including a supplemental section in the report on how public views are integrated in the policy process.

Public Comments

Dr. Grasso noted that no members of the public had asked to address the Committee.

A break was taken at 10:15 a.m. The discussion resumed at 10:30 a.m.

Committee’s Response to Charge Questions

Dr. Grasso opened the discussion of the Committee’s charge questions (See Attachment G) by proposing a different order for consideration of the questions.

A Committee member asked first for clarification of the statement regarding the term “ecological benefits” as used on page 1, lines 14-16 of the draft strategic plan. Dr. Grasso concurred that it is an overarching concept that must be clarified. Members discussed that some uses of the term “ecological benefits” involve human benefits that do not have benefits for the ecosystem; other uses of the term involve ecological effects that do not have a human benefit. It was noted that the terms “goods and services analysis” and “damages averted” automatically takes benefit to humans into account. A member commented that moral/aesthetic considerations are often cited

but are not necessarily included in benefit assessments. Dr. Wyatt stated that in terms of the strategic plan, the Agency is most interested in benefits that result from its actions rather than the societal benefits of ecosystems globally. The term “ecological benefits” is shorthand for ecological changes resulting from EPA policy that contribute to human well-being.

Dr. Grasso clarified that the purpose of the draft strategic plan was to develop an improved process for assessing ecological benefits. The consensus of the Committee was to begin the discussion with charge question 1 concerning goals and objectives.

Members of the Committee expressed concern for the lack of emphasis in the draft plan on ecological risk assessment, since risk and benefit are intertwined. The benefit of years of study on risk will be lost if the parallel is not acknowledged.

There was further discussion of the importance of the strategic plan’s clarifying EPA’s needs to communicate the value of ecological protection to different audiences: internal decision makers, Congress, the Office of Management and Budget, other federal agencies, the public and others. The issue of communication outcomes, benefits, or other kinds of information was revisited. A Committee member cautioned against view ecological benefits assessment as solely an effort needed to help the Agency communicate within the Executive Branch, and other members concurred.

A Committee member suggested developing a decision matrix demonstrating what decisions have to be made, applicable time frames, and tools traditionally used by various program offices for specific statutory purposes. Such a matrix could help provide a linkage from decisions, to assessment endpoints, to benefits assessment. The overall challenge is to move beyond the risk assessment paradigm, he said.

A member suggested that the current Agency charge questions were too specific to address without the benefit of full discussion among the Committee of the strategic plan as a whole, rather than the limited set of initial draft chapters provided to the Committee. Dr. Grasso responded that it was necessary for the Committee to provide input at this stage because of the Agency’s timetable, and he said that the charge was very broad. He suggested that relaxing the charge questions and undertaking a more global consultation would be preferable. There was consensus to do so, and the Agency staff concurred with the approach.

Issues of appropriate scale were discussed, and it was suggested that broad national goals be identified separately from regional or local scale goals. A member commented that the overarching approach in the document does not address needs at the local or regional levels. Another Committee member said that the plan should begin with the regional level and build up to the broad goals that are desirable to achieve rather than working from the top down by starting with both broad rules and full integration.

Several Committee members commented that the plan should advocate that the Agency make the most appropriate use of whatever appropriate economic and ecological information exists that relate to a decision affecting ecological resources. One suggestion was for the plan to identify

types of EPA decisions and characterize, quantify and monetize the types of benefits associated with those decisions, because these different kinds of information are appropriate to different kinds of decisions the Agency must make and communicate to different audiences. A member recommended that EPA attempt to quantify non-use benefits at the bottom of Table 1 in the draft strategic plan, not just the market benefits that are more easily addressed. The strategic plan should address the whole range of ecological benefits, not those that can be monetized.

A committee member recommended that regional offices be represented in the strategic plan working group. He also advised that one or two paragraphs providing background on institutional structure and issues should be included in the strategic plan. Such a discussion should address ways to bridge the communication and analytical differences between ecologists and economists.

Revisions to the strategic plan's introduction were suggested. The Committee suggested that the plan address both long term goals, such as a strategy for modeling approaches, and short term goals, such as the most promising research strategies to address data gaps or other short incremental goals that will help make the case for valuation. Another member noted that a clear articulation of EPA's role and mission in protecting ecological resources is needed, especially as it relates to the work of other agencies. EPA has a significant pro-active mission in ecological health, not just a reactive role.

In response to a question from a Committee member about quantitative approaches that did not involve monetization, Dr. Grasso suggested that members of the Committee help provide information on these approaches.

There was discussion of endorsing an adaptive mechanism that would allow dynamic and spatially-specific analyses that would, over time, help develop a more robust, consistent Agency approach to valuing ecological protection at the regional and national levels. A member cautioned that program offices implement and do not create the legal framework, so they have limited ability to adapt regulatory processes. The Committee then discussed the need for the Agency to develop analytical tools to consider unexpected consequences such as ecological changes, economics, and behavior. Even if the Agency is not now able to adopt such a dynamic or adaptive ecological-economic modeling approach for a given issue, members agreed that, given the regulatory context within which EPA works, the Agency should evaluate the consequences of failure to take a dynamic approach.

A Committee member suggested that the strategic plan reflect the real context of current EPA decision-making by providing details on the current and historical resource limits on ecological benefits assessment. A member suggested adding approximately 6 examples of the types of problems the Agency is attempting to solve and the limitations that are confronted to provide background information on why the plan is necessary. A general discussion of the merits of including case studies ensued. A member noted that examples may be helpful, but he cautioned against asking the Agency to move too far from a strategy into a tactical gap analysis. Another member stated that progress in the strategic plan, particularly in addressing gaps, cannot be made without reviewing past actions. He further noted that the focus should be on an analysis for the

purposes of strengthening the strategic plan. It was suggested that the focus be on case studies where decisions involved ecological impacts, where the Agency described the approaches used for analysis of ecological values affected, the data and model gaps encountered, and the decision outcomes for each case. Information on monetization should be included when possible. It was suggested that examples be listed without too much detail to avoid "taking over" the overall document. It was also noted that the document already contains a whole section on past EPA efforts and that it could be revised to include conclusions or references to the case studies. A member of the Committee mentioned the National Research Council report "Ecological Knowledge and Environmental Problem-Solving: Concepts and Case Studies," by the Committee on the Applications of Ecological Theory to Environmental Problems (1986) as a potentially helpful resource containing case studies.

Dr. Grasso summarized the view of the Committee as recommending that the Agency include examples to some degree as a preface to justify the strategic approach. The examples do not need to be strictly monetized and should suggest or demonstrate a possible approach to scaling between regional and nation scales. Issues associated with selecting temporal and spatial scales should be discussed. The overall objectives and goals of the plan might be recast after analysis of the examples. After a brief discussion, Dr. Grasso determined that the sense of the Committee was that the formal advisory on the strategic plan, tentatively scheduled for January, should be delayed in lieu of another consultation, given the magnitude of the recommended changes. In response to a question from a Committee Member, he said that the Agency can accept or reject the Committee's advice.

At the request of the Committee, Dr. Hayes elaborated further on the plans for the upcoming OW workshop. She agreed to provide more detailed information at the next Committee meeting.

A Committee member mentioned work being done by a current National Research Council Committee on Assessing and Valuing the Services of Aquatic Ecosystems. Three members of the SAB committee, Dr. Geoffrey Heal, Dr. Stephen Polasky, and Dr. Kathleen Segerson, serve on that Committee. The document reflecting their work may go to review in about six weeks with the final document perhaps available in January. The Committee member will see if the table of contents or an outline can be made available to the Committee since it may provide useful input.

Dr. Grasso summarized the comments of Committee members concerning the appendix to the draft strategic plan. The Committee recommended reviewing the research for omissions as well as possibly establishing some sort of priority listing.

The Committee adjourned for lunch at 12:10 p.m. The discussion resumed at 1:05 p.m.

Dr. Grasso stated that Dr. Owens had agreed to provide a preliminary response to suggestions from the morning session.

Dr. Owens thanked the Committee members for their valuable insights, which provided a much better understanding of how to move forward with the strategic plan. She committed to returning

to reviewing the Committee members' advice with her workgroup and to return for a more detailed consultation in January. She noted that although half of the members of the working group are ecologists, most are based in Research Triangle Park in North Carolina and were thus unable to attend the Committee meeting. The Committee's ideas on providing regional participation in the working group will be implemented, she said. Dr. Owens will also work on providing to the Committee some summary information from the staff survey.

Introduction to Proposed "Schedule of Activities" for Committee

Dr. Nugent discussed the reference documents posted on the SAB website for the Committee (<http://yosemite.epa.gov/SAB/sabcvpress.nsf/Background?OpenView>). She reminded members that a website of references had been created for their use. References can be sorted by author, category, or other criteria by request, she said. Many of the publications mentioned during the workshop and Committee meeting are already available on the website.

Dr. Nugent stated the charge to the Committee, "to assess Agency needs and the state of the art and science of valuing protection of ecological systems and services, then to identify key areas for improving knowledge, methodologies, practice, and research." She reviewed the proposed schedule of activities for the Committee and how the proposed activities fit together (See Attachment I).

General Discussion and Identification of Thematic Issues

Dr. Grasso stated that the proposed schedule of activities was designed to serve as a basis for the Committee's discussion of its future efforts and major thematic issues to be addressed. While members can propose special projects, the original thinking was that the Agency would come to the Committee for input on current projects.

Dr. Nugent advised that real engagement with Agency projects would be very helpful, particularly providing practical advice on the two project proposals.

Dr. Grasso stated that the next two Committee meetings were planned as workshops with groups outside the EPA to showcase methods and approaches that might be useful for EPA.

A general discussion of the potential workshops resulted in the following suggestions: the SAB Staff and the Committee should provide outlines or other guidance to the participants in advance to achieve the most productive results; there was a need to choose areas of focus carefully and design workshops so they help inform EPA's use of methodologies, resources, or particular types of effects.

There was general discussion of possible thematic issues for the Committee's focus over the lifetime of the SAB project. Members brainstormed the issues to be addressed by the time of their final advisory report to the Agency. Dr. Nugent provided a temporary working outline via a slide of summary talking points to assist Committee members in focusing their discussion. Several points were raised.

Members reiterated the need for a decision-making matrix describing the problems faced by various program offices in ecological assessments, including specific questions on areas such as scale, who is involved, time frame, procedural mechanisms used to determine value questions, and appropriate case studies. Purpose and context was suggested as the overarching theme.

The difference between the terms “valuation” and “value” was discussed, and it was suggested that the differences in how these terms are used be catalogued in a manner to show whether and how they captured goods and serves related to human well-being. It was noted that there is more than one way to value ecological systems, and that different methods may be more effective in different contexts. A member suggested that more information was needed on non-monetized approaches to valuing ecological benefits.

A Committee member suggested a focus on the global mission of the EPA to protect environmental security in terms of calculating a national benefit-cost analysis. During the discussion that followed, that issue members discussed the difficulty of defining baseline conditions and the difficulties in establishing national ecosystem value and a quantitative or monetized statement the state of the nation’s ecosystem. Some Committee members suggested that a more narrow scope was called for to achieve a more tangible impact. A review of reports such as the “2003 Report on the Environment” and the Heinz report was suggested to assist in benefit analysis, gap analysis, and scaling related to this topic. An analysis of benefits transfer was also mentioned as related.

Dr. Grasso requested that Committee members volunteer to be team leaders on each of the proposed thematic issues identified, in order to prepare a one-page analysis for the Committee’s consideration and discussion planning teleconference to be planned for December.

The consensus of the Committee was to consider approaches to the following overarching issues:

1. Purpose/contextual influences – spatial and temporal scale, vulnerability of ecosystems, types of decisions, decision makers, audience.
2. Values in a democratic society – how elicited, measured, weighed, and types of processes and communicated.
3. Alternative approaches/methods for valuing ecological system, services and outcomes – What can be quantified, what can be monetized? Decision-specific approaches. Alternative technological solutions.
4. Are different methodologies called for by different spatial and temporal scales? Analytical challenges in linking economic and ecological information.
5. Express delta value with respect to the nation’s ecological assets; national environmental policy and investment.

6. Institutional framework at EPA to facilitate benefits assessment.

Several members volunteered to serve as team leaders to prepare for subsequent Committee deliberations (Dr. Gregory Biddinger: Theme 1; Dr. Paul Slovic: Theme 2; Dr. James Boyd: Theme 3; Dr. Mark Sagoff: Theme 4; Dr. Dennis Grossman: Theme 5; Dr Buzz Thompson: Theme 6). Dr. Grasso suggested that conference calls may be necessary among the teams, which will be arranged by Dr. Nugent upon request. He suggested that appropriate case studies that members are aware of should be circulated. Dr. Grasso emphasized the importance of receiving feedback on the themes by early December to prepare for subsequent Committee meetings. Dr. Nugent noted that future meeting agendas would be built around these themes.

Dr. Grasso thanked Committee members and Agency staff for their participation. The meeting was adjourned at 3:05 p.m.

Respectfully Submitted:

Designated Federal Officer

Certified as True:

Chair

NOTE AND DISCLAIMER: The minutes of this public meeting reflect diverse ideas and suggestions offered by the Panel members during the course of deliberations within the meeting. Such ideas, suggestions, and deliberations do not necessarily reflect definitive consensus advice from the panel members. The reader is cautioned to not rely on the minutes to represent final, approved, consensus advice and recommendations offered to the Agency. Such advice and recommendations may be found in the final advisories, commentaries, letters, or reports prepared and transmitted to the EPA Administrator following the public meetings.

Attachments

Attachment A	Roster
Attachment B	Federal Register Notice
Attachment C	Meeting Agenda
Attachment D	Ecological Benefits Assessment Strategic Plan
Attachment E	Ecological Benefits Assessment Strategic Plan Appendix B, Literature and Information Resources for Ecological Benefits Assessment
Attachment F	NCEE/OPP Slide Presentation
Attachment G	Charge Questions
Attachment H	Proposed Schedule of Activities

Attachment A: Roster

**U.S. Environmental Protection Agency
Science Advisory Board
Committee on Valuing the Protection of Ecological Systems and Services**

CHAIR

Dr. Domenico Grasso, Rosemary Bradford Hewlett Professor and Chair, Picker Engineering Program, Smith College, Northampton, MA

Also Member: Executive Committee

Environmental Engineering Committee

SAB MEMBERS

Dr. William Louis Ascher, Dean of the Faculty, Bauer Center, Claremont McKenna College, Claremont, CA

Dr. Gregory Biddinger, Environmental Sciences Advisor, Exxon Mobil Refining and Supply Company, Fairfax, VA

Also Member: Ecological Processes and Effects Committee

Dr. Ann Bostrom, Associate Professor, School of Public Policy, Georgia Institute of Technology, Atlanta, GA

Dr. James Boyd, Senior Fellow, Director, Energy & Natural Resources Division, Resources for the Future, Washington, DC

Dr. Robert Costanza, Professor/Director, Gund Institute for Ecological Economics, School of Natural Resources, University of Vermont, Burlington, VT

Dr. Terry Daniel, Professor of Psychology and Natural Resources, Department of Psychology, Environmental Perception Laboratory, University of Arizona, Tucson, AZ

Dr. A. Myrick Freeman, Research Professor of Economics, Department of Economics, Bowdoin College, Brunswick, ME

Dr. Dennis Grossman, Vice President for Science, Science Division, NatureServe, Arlington, VA

Dr. Geoffrey Heal, Paul Garrett Professor of Public Policy and Business Responsibility, Columbia Business School, Columbia University, New York, NY

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Dr. Robert Huggett, Vice President for Research and Graduate Studies, Office of Vice President for Research and Graduate Studies, Michigan State University, East Lansing, MI

Dr. Klaus Lackner, Ewing Worzel Professor of Geophysics, Earth and Environmental Engineering, Columbia University, New York, NY

Dr. Douglas E. MacLean, Professor, Department of Philosophy, University of North Carolina, Chapel Hill, NC

Dr. Harold Mooney, Paul S. Achilles Professor of Environmental Biology, Department of Biological Sciences, Stanford University, Stanford, CA

Dr. Richard Norgaard, Professor of Energy and Resources, Energy and Resources Program, Agricultural and Resource Economics, University of California at Berkeley, Berkeley, CA
Also Member: Environmental Economics Advisory Committee

Dr. Louis F. Pitelka, Director and Professor, Appalachian Laboratory, University of Maryland Center for Environmental Science, Frostburg, MD

Dr. Stephen Polasky, Fesler-Lampert Professor of Ecological/Environmental Economics, Department of Applied Economics, University of Minnesota, St. Paul, MN
Also Member: Environmental Economics Advisory Committee

Dr. Paul G. Risser, Chancellor, Oklahoma State Regents for Higher Education, Oklahoma City, OK

Dr. Holmes Rolston, University Distinguished Professor, Department of Philosophy, Colorado State University, Fort Collins, CO

Dr. Joan Roughgarden, Professor, Biological Sciences and Evolutionary Biology, Stanford University, Stanford, CA

Dr. Mark Sagoff, Senior Research Scholar, Institute for Philosophy and Public Policy, School of Public Affairs, University of Maryland, College Park, MD

Dr. Kathleen Segerson, Professor, Department of Economics, University of Connecticut, Storrs, CT

Also Member: Environmental Economics Advisory Committee

Dr. Paul Slovic, Professor, Department of Psychology, Decision Research, Eugene, OR

Dr. V. Kerry Smith, University Distinguished Professor, Department of Agricultural and Resource Economics, College of Agriculture and Life Sciences, North Carolina State University, Raleigh, NC

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Also Member: Advisory Council on Clean Air Compliance Analysis

Dr. Robert Stavins, Albert Pratt Professor of Business and Government, Environment and Natural Resources Program, John F. Kennedy School of Government, Harvard University, Cambridge, MA

Also Member: Environmental Economics Advisory Committee

Dr. Valerie Thomas, Research Scientist, Princeton Environmental Institute, Princeton University, Princeton, NJ

Also Member: Environmental Engineering Committee

Dr. Barton H. (Buzz) Thompson, Jr., Robert E. Paradise Professor of Natural Resources Law and Vice Dean, Stanford Law School, Stanford University, Stanford, CA

SCIENCE ADVISORY BOARD STAFF

Dr. Angela Nugent, Designated Federal Officer, 1200 Pennsylvania Avenue, NW, Washington, DC, Phone: 202-564-4562, Fax: 202-501-0323, (nugent.angela@epa.gov)

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Attachment B: Federal Register Notice



U.S. Environmental Protection Agency

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Advisory Board Staff Office; Committee on Valuing the Protection of Ecological Systems and
Services Notification of Upcoming Public Workshop and Public Advisory Committee Meeting

3 October 2003

Science Advisory Board Staff Office; Committee on Valuing the Protection of Ecological Systems and Services Notification of Upcoming Public Workshop and Public Advisory Committee Meeting

[Federal Register: October 22, 2003 (Volume 68, Number 204)]
[Notices]
[Page 60368-60369]
From the Federal Register Online via GPO Access [wais.access.gpo.gov]
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ENVIRONMENTAL PROTECTION AGENCY
[FRL-7577-4]

Science Advisory Board Staff Office; Committee on Valuing the
Protection of Ecological Systems and Services Notification of Upcoming
Public Workshop and Public Advisory Committee Meeting

AGENCY: Environmental Protection Agency (EPA).
ACTION: Notice.

SUMMARY: The EPA Science Advisory Board (SAB) Staff Office is
announcing a non-advisory public workshop and a public advisory meeting
of the Board's Committee on Valuing the Protection of Ecological
Systems and Services (Committee).

DATES: October 27, 2003. The Committee will participate in an Initial
EPA Background Workshop for the Committee from 9 a.m.-6 p.m. (Eastern
Time).

October 28, 2003. A public advisory meeting for the Committee will
be held from 8:30 a.m. to 6 p.m. on October 28, 2003.

ADDRESSES: The meeting location for the October 27, 2003 workshop and
the October 28, 2003 Committee meeting will be in Washington, DC. The
meeting location will be announced on the SAB Web site,
<http://www.epa.gov/sab> in advance of the meeting.

FOR FURTHER INFORMATION CONTACT: Any member of the public wishing
further information regarding the upcoming workshop, the upcoming
advisory meeting, or the Committee may contact Dr. Angela Nugent,
Designated Federal Officer (DFO), U.S. EPA Science Advisory Board
(1400A), 1200 Pennsylvania Avenue, NW., Washington, DC 20460; by
telephone/voice mail at (202) 564-4562; or via e-mail at
nugent.angela@epa.gov. General information about the SAB can be found
in the SAB Web site at <http://www.epa.gov/sab>.

SUPPLEMENTARY INFORMATION:

Background: Pursuant to the Federal Advisory Committee Act, Public
Law 92-463, Notice is given that the Committee will hold a public
meeting, as described above, to provide initial consultative advice on
the development of EPA's Strategic Plan for Ecological Benefits and to
plan the Committee's work.

Background on the Committee and its charge was provided in a
Federal Register notice published on March 7, 2003 (68 FR 11082-11084).
The overall charge to the Committee is to assess Agency needs and the
state of the art and science of valuing protection of ecological
systems and services, and then to identify key areas for improving
knowledge, methodologies, practice, and research.

3 October 2003

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3 October 2003

Attachment C: Agenda

**EPA Science Advisory Board
Committee on Valuing the Protection of Ecological Systems and Services
Advisory Meeting
October 28, 2003**

J.W. Marriott, 1331 Pennsylvania Avenue NW, Washington DC 20004

Purpose: To provide initial consultative advice on the Development of EPA's Strategic Plan for Ecological Benefits and to plan the Committee's work.

Draft Agenda

8:30-8:40	Opening of Public Meeting Welcome and Remarks	Dr. Angela Nugent Dr. Domenico Grasso, Chair
8:40-9:30	Presentation on Agency's Efforts to develop an "Ecological Benefits Assessment Strategic Plan" and Summary of Charge Questions for Consultation	Dr. Nicole Owens, National Center for Environmental Economics; Dr. T J Wyatt, Agricultural Economist, Office of Pesticide Programs
9:30-9:45	Public Comments	To Be Determined
9:45-10:00	Break	
10:00-12:00	Committee's Response to Charge Questions	Committee
12:00-1:00	Lunch	
1:00-2:00	Committee's Response to Charge Questions (continued)	
2:00-2:15	Introduction to Proposed "Schedule of Activities" for Committee	Dr. Angela Nugent
2:15-3:15	General Discussion and Identification of Thematic Issues	Dr. Domenico Grasso and Committee
3:15-3:30	Summary of Action Items	Dr. Domenico Grasso
3:30	Adjourn	

Attachment G - Charge Questions

Background and Charge Questions for SAB Consultation on EPA's Ecological Benefits Assessment Strategic Plan

Background

The Ecological Benefits Assessment Strategic Plan is being developed to identify, prioritize, and coordinate the efforts needed to improve ecological benefits assessment at EPA. The plan was conceived in June 2002 during work planning discussions among a group of EPA managers on current and future efforts regarding ecological benefits assessment at the Agency.

In September 2002, ICF Consulting was contracted to assist in the creation of the plan. As part of the information gathering phase of the process, ICF reviewed a wide range of information sources pertaining to the valuation of ecosystem services. These sources are included as an appendix to the plan. Between November 2002 and April 2003, 12 informational meetings were held to determine the extent to which ecological benefits are quantified and valued to support environmental decision-making at EPA and beyond. Both ecologists and economists within EPA and from other Federal agencies were invited to the informational meetings (including U.S. ACE, FWS, USGS, BLM, NPS, NOAA, and USFS). In all, 46 EPA staff and 27 staff from other agencies were interviewed: 54 ecologists and 19 economists. Meeting participants discussed the current state of the practice of ecological benefits assessment at their respective agencies and limitations in the knowledge base (i.e., data, methods, models). To supplement the anecdotal assessments provided at these informational meetings, a follow-up survey was distributed to nearly 300 EPA scientists. Over the course of two months, 86 surveys were completed and returned. The survey asked a series of structured questions regarding the known or suspected impacts of a range of environmental stressors on a range of ecological endpoints, and on the current "state of the science" on the relationships between those stressors and endpoints.

In December 2002 and April 2003 briefings were held to update interested EPA staff and managers on the progress of the strategic planning process. Also, in December 2002, the Assistant and Associate Administrators of several key EPA offices involved in the project met to discuss the progress to date and to encourage more coordination between the participating offices. As a result of that meeting, a memorandum was sent by the heads of the offices leading the planning process to the heads of all other EPA offices alerting them to the existence of this effort and asking for the cooperation of their staff.

The plan is being developed by two workgroups: a management-level steering committee and a staff-level editors group. Both groups include members from several EPA offices, and both have been meeting regularly since April 2003. Participating offices include Office of Policy, Economics, and Innovation, Office of Research and Development, Office of Water, Office of Air and Radiation, Office of Prevention, Pesticides and Toxic Substances, and Office of Solid Waste and Emergency Response. Although the material has not undergone a formal Agency review, both the steering committee and editors group have reviewed the attached draft material and are comfortable submitting the material in order to seek SAB feedback that will help EPA develop the plan. .

The plan will be subject to broad inter-agency review, as well as consultation and review by the Science Advisory Board, Committee on Valuing the Protection of Ecological Systems and Services. EPA expects to complete the plan in early 2004.

List of attached material

- Ecological Benefits Assessment Strategic Plan, SAB Review Draft, Sections 1 to 3 and 6
- Appendix B: Literature and Information Resources for Ecological Benefits Assessment

Charge questions for the Committee

This draft material is being submitted to the Science Advisory Board in order to seek feedback to aid in the development of the plan. As you review the draft materials noted above and prepare your reactions, we ask you to consider the following questions:

- 1. Are the goals and objectives in Section 1.1 appropriate and clearly stated? If not, do you have suggestions for improvement?*
- 2. Section 2.2 discusses past EPA-related efforts to improve the assessment of ecological benefits. Are you aware of any other past efforts that should be mentioned in this Section? Please provide references if possible.*
- 3. Is the discussion of the current state of the practice in ecological risk assessment and economic valuation at EPA in Section 3 clear? Based on past experience you may have had with EPA, does this discussion accurately reflect the state of the practice at the Agency? Do you agree that the integrated process described in Section 3 is one that the Agency should strive to implement? If not, please suggest alternative processes.*
- 4. Appendix B provides a list of information resources related to the economic valuation of ecosystem services. Are you aware of other items that should be included in this appendix?*
- 5. Are you aware of ongoing activities which may be of use to EPA as it develops the Plan?*
- 6. What are your initial thoughts regarding the major knowledge gaps with regard to ecological benefits assessment at EPA?*
- 7. Based on your past experience with EPA, which, if any, communication and process barriers do you feel impact the Agency's ability to value ecological benefits?*

Attachment H - Proposed Schedule of Activities

US EPA Science Advisory Board (SAB) Project: Valuing the Protection of Ecological Systems and Services

Proposed Schedule of Activities

June 2003	Committee Chair Meets with Agency regarding project, proposed schedule of activities, and preparation for Initial Meeting
August 2003	Committee selected
September 16, 2003	<i>Administrative Teleconference Call</i>
October 27, 2003 October 28, 2003	<i>Initial EPA Background Workshop</i> -To provide a brief introduction for the Committee to the major types of EPA decisions involving valuing ecological systems and services, current EPA tools and EPA's needs. <i>First Advisory Meeting</i> (Topics to be confirmed) -To provide initial consultative advice on the Development of EPA's Strategic Plan for Ecological Benefits and to plan the Committee's work - To plan the Committee's "Schedule of Activities"
January 20-22, 2004	<i>State of the Applied Science Workshop</i> to showcase approaches used for valuing protection of ecological systems and services used by nongovernmental organizations, international organizations and industry sectors <i>Second Advisory Meeting</i> (Topics to be confirmed) - To provide an advisory on EPA's Strategic Plan for Ecological Benefits -To provide advice on benefits approaches to support Region 4's South East Ecological Framework

April 13-15, 2004	<p><i>State of the Applied Science Workshop - Federal and State Sector</i> - to showcase approaches used for valuing protection of ecological systems and services used by other federal and state agencies.</p> <p><i>Third Advisory Meeting</i> (Topics to be confirmed)</p> <ul style="list-style-type: none">- To provide advice on ecological benefits assessment from EPA's Office of Water- To provide advice on a selected suite of Regulatory Impact Analyses (RIA's) to be identified by EPA's National Center for Environmental Economics. Focus will be on relatively "ecology-science-rich" assessment to explore their potential for characterizing benefits.
June 14-16, 2004	<p><i>State of the Applied Science Workshop</i> - to showcase approaches for integrating across academic disciplines and sectors</p> <p><i>Fourth Advisory Meeting</i> (Topics to be confirmed)</p> <ul style="list-style-type: none">- On an advisory topic to be identified.
September 13-15, 2004	<p><i>Fifth Advisory Meeting</i> (Topics to be confirmed)</p> <ul style="list-style-type: none">- Development of final report to the Agency synthesizing advice.